

**CLAIMS**

What is claimed is:

1. A polyacetal resin composition consisting  
5   essentially of (a) a polyacetal resin, and (b) a low molecular weight  
primary or secondary amino compound of low volatility, containing  
at least one amino group and two or more carbon atoms, and  
having a pK<sub>b</sub> in the range of about 2 – 8; wherein the composition  
is characterized by a formaldehyde concentration at room  
10   temperature that is less than about 50% of the formaldehyde  
concentration of the polyacetal resin itself.
2. A composition according to Claim 1 wherein the  
amino compound has a pK<sub>b</sub> in the range of about 4 – 8.  
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3. A composition according to Claim 1 wherein the  
amino compound is characterized by  $T_{bp} > T_m - 60^\circ\text{C}$ , where  $T_{bp}$  is  
the boiling point of the amino compound and  $T_m$  is the melting  
point of the polyacetal resin.  
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4. A composition according to Claim 1 wherein the  
amino compound is selected from the group consisting of  
monoethanolamine, diethanolamine, 2-amino-2-ethyl-propanediol,  
2-amino-2-methyl-propanol, tris(hydroxymethyl)aminomethane,  
25   ethyl *p*-aminobenzoate, methyl anthranilate, butyl *m*-  
aminobenzoate, and mixtures thereof.

5. A composition according to Claim 1 wherein the amino compound is selected from the group consisting of tris(hydroxymethyl)aminomethane, ethyl *p*-aminobenzoate, and mixtures thereof.

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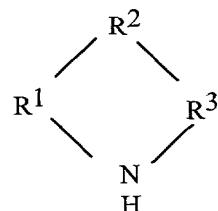
6. A composition according to Claim 1 wherein the amino compound is present in the composition in an amount of about 0.01~10 parts by weight, per 100 parts by weight of the polyacetal resin.

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7. A composition according to Claim 1 wherein the polyacetal resin is an acetal copolymer.

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8. A composition according to Claim 1 further consisting essentially of an organic cyclic compound having an active imino group according to the formula



20 wherein R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are divalent organic radicals.

9. A composition according to Claim 1 further consisting essentially of at least one additive selected from the

group consisting of nucleating agents, mold release agents, surfactants, impact modifiers, reinforcing agents, anti-static agents, plasticizers, lubricants, fillers and colorants.

5                   10. A polyacetal resin composition comprising (a) a polyacetal resin, and (b) one or more amino compounds selected from the group consisting of diethanolamine, ethyl *p*-aminobenzoate, methyl anthranilate and butyl *m*-aminobenzoate; wherein the composition is characterized by a formaldehyde 10 concentration at room temperature that is less than about 50% of the formaldehyde concentration of the polyacetal resin itself.

15                   11. A composition according to Claim 10 wherein the amino compound has a pK<sub>b</sub> in the range of about 2 – 8.

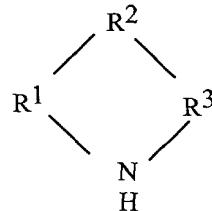
15                   12. A composition according to Claim 10 wherein the amino compound is ethyl *p*-aminobenzoate.

20                   13. A composition according to Claim 10 wherein the amino compound is present in the composition in an amount of about 0.01~10 parts by weight, per 100 parts by weight of the acetal homopolymer resin.

25                   14. A composition according to Claim 10 wherein the polyacetal resin is an acetal copolymer.

15. A composition according to Claim 10 wherein the polyacetal resin is an acetal homopolymer resin end-capped with an ester group.

5 16. A composition according to Claim 10 further comprising an organic cyclic compound having an active imino group according to the formula



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wherein R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are divalent organic radicals.

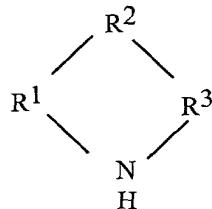
17. A composition according to Claim 10 further comprising at least one additive selected from the group consisting 15 of nucleating agents, mold release agents, surfactants, stabilizers, impact modifiers, reinforcing agents, anti-static agents, antioxidants, plasticizers, lubricants, fillers and colorants.

18. A polyacetal resin composition comprising (a) a 20 polyacetal resin, and (b) succinimide; wherein the composition is characterized by a formaldehyde concentration at room temperature that is less than about 50% of the formaldehyde concentration of the polyacetal resin itself.

19. A composition according to Claim 18 wherein the succinimide is present in the composition in an amount of about 0.01~10 parts by weight, per 100 parts by weight of the polyacetal 5 resin.

20. A composition according to Claim 18 wherein the polyacetal resin is an acetal copolymer.

10 21. A composition according to Claim 18 further comprising an organic cyclic compound having an active imino group according to the formula



15 wherein R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are divalent organic radicals.

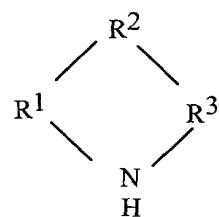
22. A composition according to Claim 18 further comprising at least one additive selected from the group consisting 20 of nucleating agents, mold release agents, surfactants, stabilizers, impact modifiers, reinforcing agents, anti-static agents, antioxidants, plasticizers, lubricants, fillers and colorants.

23. A polyacetal resin composition comprising (a) a polyacetal resin, and (b) anthranilic acid, 4-amino benzoic acid, or a mixture thereof; wherein the composition is characterized by a formaldehyde concentration at room temperature that is less than 5 about 50% of the formaldehyde concentration of the polyacetal resin itself.

24. A composition according to Claim 23 wherein the anthranilic acid, 4-amino benzoic acid or mixture thereof is present 10 in the composition in an amount of about 0.01~10 parts by weight, per 100 parts by weight of the polyacetal resin.

25. A composition according to Claim 23 wherein the polyacetal resin is an acetal copolymer.

15 26. A composition according to Claim 23 further comprising an organic cyclic compound having an active imino group according to the formula



20 wherein  $R^1$ ,  $R^2$  and  $R^3$  are divalent organic radicals.

27. A composition according to Claim 23 further comprising at least one additive selected from the group consisting of nucleating agents, mold release agents, surfactants, stabilizers,

impact modifiers, reinforcing agents, anti-static agents, antioxidants, plasticizers, lubricants, fillers and colorants.

28. A shaped article produced from a composition  
5 according to Claim 1.

29. A shaped article produced from a composition  
according to Claim 10.

10 30. A shaped article produced from a composition  
according to Claim 18.

31. A shaped article produced from a composition  
according to Claim 23.

15 32. A method for reducing the formaldehyde  
concentration of a part molded from a polyacetal resin, comprising  
20 (a) forming a composition consisting essentially of (i)  
the polyacetal resin, and (ii) a low molecular weight primary  
or secondary amino compound of low volatility, containing at  
least one amino group and two or more carbon atoms, and  
having a pK<sub>b</sub> in the range of 2 – 8; wherein the composition  
is characterized by a formaldehyde concentration at room  
temperature that is less than about 50% of the formaldehyde  
concentration of the polyacetal resin itself; and  
25 (b) molding the part from the composition.

33. A method according to Claim 32 further comprising the step of selecting as the amino compound a member of the group consisting of monoethanolamine, diethanolamine, 2-amino-2-ethyl-propanediol, 2-amino-2-methyl-propanol,  
5 tris(hydroxymethyl)aminomethane, ethyl *p*-aminobenzoate, methyl anthranilate, butyl *m*-aminobenzoate, and mixtures thereof.

34. A method according to Claim 33 further comprising the step of selecting as the amino compound a member  
10 of the group consisting of tris(hydroxymethyl)aminomethane, ethyl *p*-aminobenzoate, and mixtures thereof.

35. A method for reducing the formaldehyde concentration of a part molded from an polyacetal resin,  
15 comprising  
(a) forming a composition comprising (i) the polyacetal resin, and (ii) one or more amino compounds selected from the group consisting of diethanolamine, ethyl *p*-aminobenzoate, methyl anthranilate and butyl *m*-aminobenzoate; wherein the composition is characterized by  
20 a formaldehyde concentration at room temperature that is less than about 50% of the formaldehyde concentration of the polyacetal resin itself; and  
(b) molding the part from the composition.

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36. A method according to Claim 35 further comprising the step of selecting as the amino compound ethyl *p*-aminobenzoate.

37. A method for reducing the formaldehyde concentration of a part molded from a polyacetal resin, comprising

(a) forming a composition comprising (i) the polyacetal resin, and (ii) succinimide; wherein the composition is characterized by a formaldehyde concentration at room temperature that is less than about 50% of the formaldehyde concentration of the polyacetal resin itself; and

(b) molding the part from the composition.

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38. A method for reducing the formaldehyde concentration of a part molded from a polyacetal resin, comprising

(a) forming a composition comprising (i) the polyacetal resin, and (ii) anthranilic acid, 4-amino benzoic acid, or a mixture thereof; wherein the composition is characterized by a formaldehyde concentration at room temperature that is less than about 50% of the formaldehyde concentration of the polyacetal resin itself; and

(b) molding the part from the composition.

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